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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/532,442

04/21/2005

Trent Michael Victor Kaiser

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SEATTLE, WA 98101-2347

EXAMINER

DAVIS, MARY ALICE

ART UNIT

PAPER NUMBER

3748

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/02/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.		Applicant(s)	
	10/532,442		KAISER ET AL.	
	Examiner		Art Unit	
	Mary A. Davis		3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/17/2005</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 250. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application.
2. The drawings are objected to because the symbols that are used to indicate various materials do not follow the symbol conventions in MPEP 608.02 (Pages 600-113 and 600-114). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application.
3. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are

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not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 2 is objected to because of the following informalities: "a rotor" was recited in claim 1 from which claim 2 depends, so it should be referenced as - - said rotor - -.

Appropriate correction is required.

5. Claim 15 is objected to because it includes reference characters, which are not enclosed within parentheses: Please change "202" to - - (202) - -.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims.

See MPEP § 608.01(m).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 12 depends on claim 2. Claim 2 recites the limitation of "an elastomer coated interior (4)", and claim 12 recites the limitation "an unequal preferential circumferential distribution of elastomer coating (4) at intervals along the

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circumference of the tube (10)". The elastomer coating in claim 2 is stated to be located interior to the tube while the elastomer coating in claim 12 is recited to be on the outside of the tube. Is the coating on the inside, the outside, or both the inside and outside of the tube?

Claim Rejections - 35 USC § 102/103

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-6, 11, and 13 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JAGER '358 (U.S. Patent 6,293,358 B1).

Regarding claims 1 and 13, JAGER '358 discloses:

- A Moineau stator, comprising:
 - a tube (2) having lobes (see Figure 2) arranged in a configuration which is adapted to interact with a rotor (5) and formed through a hydroforming process.
- (JAGER '358 discloses each and every structural element of the Moineau pump.)

JAGER '358 further discloses that tube is made of steel, or a similar stable metal (Column 1, lines 29-33), but is silent as to the method of forming the tube. The claimed phrase "hydroforming process" (Claim 1) and "where in the tube is placed into a hydroforming fixture and formed to have lobes, through a hydroforming process" (Claim 13) is being treated as a product by process limitation; that is, that the tube is made by hydroforming. As set forth in MPEP 2113, product by process claims are NOT limited to the manipulations of the recited steps, only to the structure implied by the steps. Once a product appearing to be substantially the same or similar is found, a 35 U.S.C. 102/103 rejection may be made and the burden is shifted to applicant to show an unobvious difference. See MPEP 2113.

- Thus, even though JAGER '358 is silent as to the process used to form the tube, it appears that the product in JAGER '358 would be the same or similar as that claimed; especially since both applicant's product and the prior art product is made of metal (see Column 1, lines 29-33).

Regarding claim 2, JAGER '358 discloses:

- the tube (2) has an elastomer coated interior (3) adapted to form a liquid seal with a rotor (it is inherent that the elastomer coating forms a liquid seal with the rotor, see FORREST (U.S. Patent 5,171,138) Column 3, lines 24-28).

Regarding claim 3, JAGER '358 discloses:

- the elastomer (3) is of uniform thickness (see Figure 2).

Regarding claim 4, JAGER '358 further discloses:

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- the tube (2) is thin walled (Column 2, lines 42-51) and is surrounded by a supporting structure (1) (Column 2, lines 56-59).

Regarding claim 5, JAGER '358 further discloses:

- the support structure (1) is a support housing (see Figure 2).

Regarding claim 6, JAGER '358 further discloses:

- the support housing (1) is cylindrical (see Figures 1 and 2).

Regarding claim 11, JAGER '358 further discloses:

- an unequal preferential axial distribution of elastomer coating (3) at intervals along the length of the tube (2) (Figure 1 appears to show that there is an unequal distribution of elastomer coating along the length of the tube where there appears to be more coating in the convex areas versus the concave. Since a single figure appears to show the necessary unequal amounts of coating on the tubes, it is deemed inherent, absent evidence to the contrary, that the coating is indeed unequal along the length of the tube. Furthermore, JAGER '358 inherently has an unequal amount of coating over the length of the tube. It is inherent, since JAGER '358 does not disclose any special methods to form an even elastomer coating over the tube. See JAGER '787 (U.S. Patent 6,427,787) which teaches that it is common to have unequal thicknesses of the elastomer coating along the length of the tube (Column 1, lines 16-25), and that only by special features is the coating able to be made to be uniform).

Claim Rejections - 35 USC § 103

11. Claims 1-6, 11, and 13 are rejected under 35 USC 103(a) as obvious over JAGER '358 in view of CHOLET ET AL (U.S. Patent 6,336,796 B1).

JAGER '358 discloses each and every structural element of the Moineau pump. JAGER '358 further discloses that tube is made of steel, or a similar stable metal (Column 1, lines 29-33), but is silent as to the method of forming the tube. The claimed phrase "hydroforming process" (Claim 1) and "where in the tube is placed into a hydroforming fixture and formed to have lobes, through a hydroforming process" (Claim 13) means that the tube is made by hydroforming process.

CHOLET ET AL teaches that hydroforming process is utilized to form the tube in a Moineau pump. The hydroforming process is described as placing an element (31) into a hydroforming fixture (30) to form the tube in the appropriate shape with lobes (see Figures 9 and 10, and Column 5, line 48 - Column 6, line 6).

Therefore, even if "hydroforming process" results in different structural characteristics of the end product than other molding methods, it still would have been prima facie obvious at the time the invention was made to use "hydroformed" tube in JAGER '358 as claimed since CHOLET ET AL teaches that hydroforming process is recognized as a useful technique for forming components in a Moineau pump.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JAGER '358 in view of UNDERWOOD ET AL (Canadian Patent Publication Number CA 2 333 948 A1).

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JAGER '358 discloses the claimed invention, however, fails to disclose the support housing having lobes. UNDERWOOD ET AL teaches a support housing (355) has lobes (see Figure 12).

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have the support housing having lobes of the Moineau pump of JAGER '358, in light of the teachings of UNDERWOOD ET AL, in order to provide a distinctive appearance to the support housing (see Abstract).

13. Claims 8, 12, and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over JAGER '358 in view of FORREST (U.S. Patent 5,171,138).

Regarding claim 14, JAGER '358 further discloses:

- the support structure is a rigid support housing (1) having walls able to resist pressure, torque, and axial loads experienced in its intended operating environment (it is inherent that the walls are able to resist pressure, torque and axial loads experienced in its intended operating environment, since the structural limitations on JAGER '358 are designed to operate in their intended operating conditions), and the tube (2,3) is deformable supported within the support housing (1) (Column 2, lines 53-65, where the tube has an elastomer coating (3) which is deformable), the tube having an interior surface (see Figure 2, interior to the elastomer coating (3)), an exterior surface (see Figure 2, exterior to 2), lobes (see Figure 2 which shows lobes on the tube) arranged in a configuration adapted to interact with a moineau rotor (5) and walls (see Figures 2, 3, and 9 which shows that the tube interacts with the rotor via the elastomer

coating (3) and that it also interacts with the housing via (8) and (9)) that are sufficiently thin as to be subjected to elastic deformation in response to interfacial seal forces imposed by interference with the rotor (the elastomer coating (3) is subject to elastic deformation in response to the interface of the rotor (Column 3, lines 62-63, it is inherent that the elastic deformation is in response to the interface of the rotor, since the rotor rotates and pumps fluid thru the device due to this interference contact with the tube (2,3)); and means are provided for supporting the tube (9) (see Figures 3 and 4) within the support housing (1). However, he fails to disclose an elastomer coating or filler either on the exterior surface of the tube or an interior surface of the support housing, or that the coating/filler is unequally distributed.

Regarding claim 8, FORREST teaches:

- one of an exterior surface of the tube or an interior surface of the support housing is coated with elastomer (18, 19) (see Figure 4, Column 3, lines 10-13 which shows that the exterior of the tube is coated with an elastomer).

Regarding claim 12, FORREST teaches:

- there is an unequal preferential circumferential distribution of elastomer coating at intervals along the circumference of the tube (see Figure 4, which shows uneven areas of elastomer coating around the circumference of the tube).

Regarding claim 15, FORREST teaches:

- the means for supporting the tube and balancing pressure being a filler (18,19) in the annulus (see Figure 4).

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Regarding claim 14, FORREST teaches:

- means for balancing pressure acting on the interior surface of the tube with a substantially equal pressure acting on the exterior surface of the tube such that the deformation of the tube (2,3) in response to pressure variations is limited (the response is limited due to the housing structure (1) while the wall of the tube remains compliant to facilitate the tube tracking movement of the rotor. (Since the means for supporting the tube and balancing pressure is the result of a filler in the annulus (as disclosed in claim 15 above), it is inherent that FORREST teaches a means for balancing pressure acting on the interior surface of the tube with a substantially equal pressure acting on the exterior surface of the tube. Furthermore, because there is filler, it would inherently limit deformation of the tube in response to the pressure variations, since the filler adds more structure to the apparatus).

Regarding claim 16, FORREST teaches:

- the filler being a compliant but relatively incompressible solid (the filler is disclosed to be an elastomer or resin (Column 3, lines 10-13) it is inherent that elastomers and resins are compliant incompressible solids).

Regarding claim 17, FORREST teaches:

- an annulus (18) between the tube (16) and the support housing (14) is filled with elastomer (Column 3, lines 10-13), thereby balancing pressure acting on the interior surface of the tube with a substantially equal force acting on the exterior

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surface of the tube such that the deformation of the tube in response to pressure variations is limited (see discussion above for claims 14 and 15).

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have an elastomer coating/filler on the exterior surface of the tube or the interior surface of the support housing in the Moineau pump of JAGER '358, in light of the teachings of FORREST, in order to provide added support for the tube (Column 3, lines 10-13).

14. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JAGER '358 in view of SEINFELD (U.S. Patent 2,695,565).

JAGER '358 discloses the claimed invention, however, fails to disclose a means provided to equalize the pressure in the axial cavities with the pressure in the interior of the tubes.

Regarding claim 9, SEINFELD teaches:

- discrete pressurized axial cavities (see Figure 3, 38, Column 5, lines 35-41) are positioned in an annulus (38, see Figures 3-6) between the tube (70,18,17) and the support housing (16) and means (28) are provided to equalize pressure in the axial cavities with pressure within the interior of the tube (Column 2, lines 68-78).

Regarding claim 10, SEINFELD teaches:

- the means to equalize pressure includes fluid passages (28) allowing fluids from the interior of the tube to communicate with the axial cavities (Column 2, lines 68-78).

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have provided equalized pressure in axial cavities of the Moineau pump of JAGER '358, in light of SEINFELD, in order to minimize the undue torsional stresses on the tube (Column 5, lines 35-43).

15. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over modified JAGER '358 as applied to claim 15 above, and further in view of WENDELIN (German Patent Number DE 3119568) and O'CONNOR (U.S. Patent 3,139,035).

The modified JAGER '358 discloses the claimed Moineau pump, however, fails to disclose the annulus between the tube and the support housing being filled with a fluid. WENDELIN teaches an annulus (8) between the tube (1) and the support housing (6) is filled with fluid (see Figure 1), and the deformation of the tube, in response to pressure variations, is limited (see Abstract). O'CONNOR teaches a balancing pressure acting on the interior surface of the tube with a substantially equal pressure acting on the exterior surface of the tube (see Figure 1, Column 1, lines 8-15 and Column 2, line 58 - Column 3, line 7).

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have fluid in the annulus between the tube and support housing filled with a fluid in the modified Moineau pump of JAGER '358, in light of the teachings of WENDELIN and O'CONNOR, in order to have a constant engagement of the rotor and the tube (see Abstract of WENDELIN) in order to not impair the pump operation (see Column 1, lines 22-50 of O'CONNOR).

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16. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over modified JAGER '358 as applied to claim 14 above, and further in view of UNDERWOOD ET AL.

The modified Moineau pump of JAGER '358 discloses the claimed invention, however, fails to disclose the support housing having lobes that interact with the lobes on the tube.

UNDERWOOD ET AL teaches a support housing (355) having lobes (see Figure 12), which interact with the lobes on the tube (see Figure 3 and Abstract). It is inherent that when the tube is supported by the support housing, the deformations are limited due to the support of the housing given to the tube. Since the tube is limited in the amount it can deform, at equilibrium, when the tube is no longer deforming, the pressure acting on the interior surface of the tube will be substantially equal pressure acting on the exterior of the tube.

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have the support housing having lobes of the Moineau pump of JAGER '358, in light of the teachings of UNDERWOOD ET AL, in order to provide a distinctive appearance to the support housing (see Abstract).

Prior Art

17. The IDS (PTO-1449) filled on 17 November 2005 has been considered. An initialized copy is attached hereto. The IDS submitted did not have the correct Application Number listed. The prior art submitted 17 November 2005 has all been

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considered by the Examiner despite the erroneous serial number discussed above.

This office will remove the IDS from 10/532,422 document.

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of 3 patents and patent publications:

- HACHE (U.S. Patent Number 6,604,922 B1) discloses non-uniform liner.
- MARANDO (U.S. Patent Number 6,497,030 B1) discloses hydroforming process.
- SEEBERGER ET AL (U.S. Patent 3,499,389) discloses a coated thin tube pump.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary A. Davis whose telephone number is (571) 272-9965. The examiner can normally be reached on Monday thru Friday; (Second Friday off) 7am - 3pm.

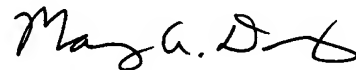
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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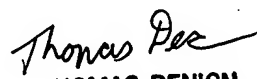
2/14/07



Mary A. Davis

Patent Examiner

Art Unit: 3748



THOMAS DENION
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